



ecology and environment, inc.

108 SOUTH WASHINGTON, SUITE 302, SEATTLE, WASHINGTON 98104, TEL. 206-624-9537

International Specialists in the Environmental Sciences

MEMORANDUM

DATE: July 16, 1985
TO: John Osborn, FIT RPO, USEPA, Region X
FROM: Paul Bulson, E&E, Seattle
THRU: Dave Buecker, FIT RPM, E&E, Seattle
SUBJ: Mastercraft Metal Finishing
HRS Score
REF: TDD R10-8502-17
CC: Jim Pankanin, USEPA, Region X

A HRS scoring of Mastercraft Metal Finishing resulted in a score of $S_m=5.63$. The low score is a result of lack of targets via surface and ground water and since neither have possible future use, the score is expected to remain the same. If Mastercraft's hazardous waste was properly stored, the containment score (#3) for S_{sw} and S_{gw} would be zero, thus S_m would equal zero. The score for Direct Contact = 41.67.

PB:jkb

USEPA SF



1443947

I

Facility name: Mastercraft Metal Finishing

Location: Seattle, WA

EPA Region: X

Person(s) in charge of the facility: Mike Kartez

Name of Reviewer: _____ Date: 5/10/85

General description of the facility:
 (For example: landfill, surface impoundment, pile, container; types of hazardous substances; location of the facility; contamination route of major concern; types of information needed for rating; agency action, etc.)

Small Electroplating operation located near Lake Union. Uses a variety of heavy metals, solvents and acids. Could possible contaminate Lake Union which has recreation uses, but this is doubtful. If the waste were properly contained the site would have a $S_M = 0$.

Scores: $S_M = 5.43$ ($S_{gw} = 0$ $S_{sw} = 9.74$ $S_a = 0$)
 $S_{FE} = 0$
 $S_{DC} = 41.67$

FIGURE 1
HRS COVER SHEET

Ground Water Route Work Sheet						
Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Max. Score	Ref. (Section)	
1 Observed Release	0 45	1	0	45	3.1	
If observed release is given a score of 45, proceed to line 4 . If observed release is given a score of 0, proceed to line 2 .						
2 Route Characteristics					3.2	
Depth to Aquifer of Concern	0 1 2 3	2	6	6		
Net Precipitation	0 1 2 3	1	3	3		
Permeability of the Unsaturated Zone	0 1 2 3	1	0	3		
Physical State	0 1 2 3	1	3	3		
Total Route Characteristics Score			12	15		
3 Containment	0 1 2 3	1	1	3	3.3	
4 Waste Characteristics					3.4	
Toxicity/Persistence	0 3 6 9 12 15 18	1	18	18		
Hazardous Waste Quantity	0 1 2 3 4 5 6 7 8	1	1	8		
Total Waste Characteristics Score			19	26		
5 Targets					3.5	
Ground Water Use	0 1 2 3	3	0	9		
Distance to Nearest Well/Population Served	0 4 6 8 10 12 16 18 20 24 30 32 35 40	1	0	40		
Total Targets Score			0	49		
6 If line 1 is 45, multiply 1 x 4 x 5 If line 1 is 0, multiply 2 x 3 x 4 x 5			0	57,330		
7 Divide line 6 by 57,330 and multiply by 100			$S_{gw} = 0$			

Sealed but
no berm

FIGURE 2
GROUND WATER ROUTE WORK SHEET

Surface Water Route Work Sheet						
Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Max. Score	Ref. (Section)	
[1] Observed Release	0 45	1	0	45	4.1	
If observed release is given a value of 45, proceed to line [4] . If observed release is given a value of 0, proceed to line [2] .						
[2] Route Characteristics					4.2	
Facility, Slope and Intervening Terrain	0 1 <u>2</u> 3	1	2	3		
1-yr. 24-hr. Rainfall	0 1 <u>2</u> 3	1	2	3		
Distance to Nearest Surface Water	0 1 <u>2</u> 3	2	4	6		
Physical State	0 1 2 <u>3</u>	1	3	3		
Total Route Characteristics Score			11	15		
[3] Containment	0 <u>1</u> 2 3	1	1	3	4.3	
[4] Waste Characteristics					4.4	
Toxicity/Persistence	0 3 6 9 12 15 <u>18</u>	1	18	18		
Hazardous Waste Quantity <i>5 drums</i>	0 <u>1</u> 2 3 4 5 6 7 8	1	1	8		
Total Waste Characteristics Score			19	26		
[5] Targets					4.5	
Surface Water Use	0 1 <u>2</u> 3	3	6	9		
Distance to a Sensitive Environment	<u>0</u> 1 2 3	2	0	6		
Population Served/Distance to Water Intake Downstream	0 4 6 8 10 12 16 18 20 <u>24</u> 30 32 35 40	1	24	40		
Total Targets Score			30	55		
[6] If line [1] is 45, multiply [1] x [4] x [5] If line [1] is 0, multiply [2] x [3] x [4] x [5]			6270	64,350		
[7] Divide line [6] by 64,350 and multiply by 100			$S_{SW} = 9.74$			

FIGURE 7
SURFACE WATER ROUTE WORK SHEET

Air Route Work Sheet						
Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Max. Score	Ref. (Section)	
1 Observed Release	0 <u>45</u>	1		45	5.1	
Date and Location:						
Sampling Protocol:						
If line 1 is 0, the $S_a = 0$. Enter on line 5 . If line 1 is 45, then proceed to line 2 .						
2 Waste Characteristics					5.2	
Reactivity and Incompatibility	0 1 2 3	1		3		
Toxicity	0 1 2 3	3		9		
Hazardous Waste Quantity	0 1 2 3 4 5 6 7 8	1		8		
Total Waste Characteristics Score				20		
3 Targets					5.3	
Population Within 4-Mile Radius	0 9 12 15 18 21 24 27 30	1		30		
Distance to Sensitive Environment	0 1 2 3	2		6		
Land Use	0 1 2 3	1		3		
Total Targets Score				39		
4 Multiply 1 x 2 x 3				35,100		
5 Divide line 4 by 35,100 and multiply by 100			$S_a =$ <u>2</u>			

FIGURE 9
AIR ROUTE WORK SHEET

	S	S ²
Groundwater Route Score (S _{gw})	0	0
Surface Water Route Score (S _{sw})	9.74	94.94
Air Route Score (S _a)	0	0
$S_{gw}^2 + S_{sw}^2 + S_a^2$		94.94
$\sqrt{S_{gw}^2 + S_{sw}^2 + S_a^2}$		9.74
$\sqrt{S_{gw}^2 + S_{sw}^2 + S_a^2} / 1.73 = S_M =$		5.63

FIGURE 10
WORKSHEET FOR COMPUTING S_M

N/A

Fire and Explosion Work Sheet						
Rating Factor	Assigned Value (Circle One)		Multi- plier	Score	Max. Score	Ref. (Section)
1 Containment	1	3	1		3	7.1
2 Waste Characteristics						7.2
Direct Evidence	0	3	1		3	
Ignitability	0	1 2 3	1		3	
Reactivity	0	1 2 3	1		3	
Incompatibility	0	1 2 3	1		3	
Hazardous Waste Quantity	0	1 2 3 4 5 6 7 8	1		8	
Total Waste Characteristics Score					20	
3 Targets						7.3
Distance to Nearest Population	0	1 2 3 4 5	1		5	
Distance to Nearest Building	0	1 2 3	1		3	
Distance to Sensitive Environment	0	1 2 3	1		3	
Land Use	0	1 2 3	1		3	
Population Within 2-Mile Radius	0	1 2 3 4 5	1		5	
Buildings Within 2-Mile Radius	0	1 2 3 4 5	1		5	
Total Targets Score					24	
4 Multiply 1 x 2 x 3					1,440	
5 Divide line 4 by 1,440 and multiply by 100 SFE =						

FIGURE 11
FIRE AND EXPLOSION WORK SHEET

Direct Contact Work Sheet						
Rating Factor	Assigned Value (Circle One)		Multi- plier	Score	Max. Score	Ref. (Section)
1 Observed Incident	0	45	1	0	45	8.1
If line 1 is 45, proceed to line 4 If line 1 is 0, proceed to line 2						
2 Accessibility	0	1 2 3	1	2	3	8.2
3 Containment <i>Acid</i>	0	15	1	15	15	8.3
4 Waste Characteristics Toxicity	0	1 2 3	5	15	15	8.4
5 Targets						8.5
Population Within a 1-Mile Radius	0	1 2 3 4 5	4	20	20	
Distance to a Critical Habitat	0	1 2 3	4	0	12	
Total Targets Score				20	32	
6 If line 1 is 45, multiply 1 x 4 x 5 If line 1 is 0, multiply 2 x 3 x 4 x 5				9000	21,600	
7 Divide line 6 by 21,600 and multiply by 100				S _{DC} = 41.67		

FIGURE 12
DIRECT CONTACT WORK SHEET

Facility name: Mastercraft Metal Finishing

Location: Seattle, WA

EPA Region: X

Person(s) in charge of the facility: Mike Karter

Name of Reviewer: _____ Date: 5/10/85

General description of the facility:
 (For example: landfill, surface impoundment, pile, container; types of hazardous substances; location of the facility; contamination route of major concern; types of information needed for rating; agency action, etc.)

Small Electroplating operation located near Lake Union. Uses a variety of heavy metals, solvents and acids. Could possible contaminate Lake Union which has recreation uses, but this is doubtful. If the waste were properly contained the site would have a $S_M = 0$.

Scores: $S_M = 5.67$ ($S_{gw} = 0$ $S_{sw} = 9.34$ $S_a = 0$)
 $S_{FE} = 0$
 $S_{DC} = 41.67$

FIGURE 1
HRS COVER SHEET

Ground Water Route Work Sheet						
Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Max. Score	Ref. (Section)	
1 Observed Release	0 45	1	0	45	3.1	
If observed release is given a score of 45, proceed to line 4 . If observed release is given a score of 0, proceed to line 2 .						
2 Route Characteristics					3.2	
Depth to Aquifer of Concern	0 1 2 3	2	6	6		
Net Precipitation	0 1 2 3	1	3	3		
Permeability of the Unsaturated Zone	0 1 2 3	1	0	3		
Physical State	0 1 2 3	1	3	3		
Total Route Characteristics Score			12	15		
3 Containment	0 1 2 3	1	1	3	3.3	
4 Waste Characteristics					3.4	
Toxicity/Persistence	0 3 6 9 12 15 18	1	18	18		
Hazardous Waste Quantity	0 1 2 3 4 5 6 7 8	1	8	8		
Total Waste Characteristics Score			19	26		
5 Targets					3.5	
Ground Water Use	0 1 2 3	3	0	9		
Distance to Nearest Well/Population Served	0 4 6 8 10 12 16 18 20 24 30 32 35 40	1	0	40		
Total Targets Score			0	49		
6 If line 1 is 45, multiply 1 x 4 x 5 If line 1 is 0, multiply 2 x 3 x 4 x 5			0	57,330		
7 Divide line 6 by 57,330 and multiply by 100			S _{gw} = 0			

FIGURE 2
GROUND WATER ROUTE WORK SHEET

Surface Water Route Work Sheet						
Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Max. Score	Ref. (Section)	
1 Observed Release	0 45	1	0	45	4.1	
If observed release is given a value of 45, proceed to line 4 . If observed release is given a value of 0, proceed to line 2 .						
2 Route Characteristics					4.2	
Facility, Slope and Intervening Terrain	0 1 <u>2</u> 3	1	2	3		
1-yr. 24-hr. Rainfall	0 1 <u>2</u> 3	1	2	3		
Distance to Nearest Surface Water	0 1 <u>2</u> 3	2	4	6		
Physical State	0 1 2 <u>3</u>	1	3	3		
Total Route Characteristics Score			11	15		
3 Containment	0 <u>1</u> 2 3	1	1	3	4.3	
4 Waste Characteristics					4.4	
Toxicity/Persistence	0 3 6 9 12 15 <u>18</u>	1	18	18		
Hazardous Waste Quantity	0 <u>1</u> 2 3 4 5 6 7 8	1	1	8		
Total Waste Characteristics Score			19	26		
5 Targets					4.5	
Surface Water Use	0 1 <u>2</u> 3	3	6	9		
Distance to a Sensitive Environment	<u>0</u> 1 2 3	2	0	6		
Population Served/Distance to Water Intake Downstream	0 4 6 8 10 <u>12</u> 16 18 20 24 30 32 35 40	1	24	40		
Total Targets Score			30	55		
6 If line 1 is 45, multiply 1 x 4 x 5 If line 1 is 0, multiply 2 x 3 x 4 x 5			6270	64 350		
7 Divide line 6 by 64,350 and multiply by 100			S _{sw} = 9.74			

FIGURE 7
SURFACE WATER ROUTE WORK SHEET

Air Route Work Sheet						
Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Max. Score	Ref. (Section)	
[1] Observed Release	0 45	1		45	5.1	
Date and Location:						
Sampling Protocol:						
If line [1] is 0, the $S_a = 0$. Enter on line [5] . If line [1] is 45, then proceed to line [2] .						
[2] Waste Characteristics					5.2	
Reactivity and Incompatibility	0 1 2 3	1		3		
Toxicity	0 1 2 3	3		9		
Hazardous Waste Quantity	0 1 2 3 4 5 6 7 8	1		8		
Total Waste Characteristics Score				20		
[3] Targets					5.3	
Population Within 4-Mile Radius	{ 0 9 12 15 18 21 24 27 30	1		30		
Distance to Sensitive Environment	0 1 2 3	2		6		
Land Use	0 1 2 3	1		3		
Total Targets Score				39		
[4] Multiply [1] x [2] x [3]				35,100		
[5] Divide line [4] by 35,100 and multiply by 100				$S_a =$		

FIGURE 9
AIR ROUTE WORK SHEET

	S	S ²
Groundwater Route Score (S _{gw})	0	0
Surface Water Route Score (S _{sw})	9.74	94.94
Air Route Score (S _a)	0	0
$S_{gw}^2 + S_{sw}^2 + S_a^2$		94.94
$\sqrt{S_{gw}^2 + S_{sw}^2 + S_a^2}$		9.74
$\sqrt{S_{gw}^2 + S_{sw}^2 + S_a^2} / 1.73 = S_M =$		5.63

FIGURE 10
WORKSHEET FOR COMPUTING S_M

N/A

Fire and Explosion Work Sheet						
Rating Factor	Assigned Value (Circle One)		Multi- plier	Score	Max. Score	Ref. (Section)
<input type="checkbox"/> 1 Containment	1	3	1		3	7.1
<input type="checkbox"/> 2 Waste Characteristics						7.2
Direct Evidence	0	3	1		3	
Ignitability	0	1 2 3	1		3	
Reactivity	0	1 2 3	1		3	
Incompatibility	0	1 2 3	1		3	
Hazardous Waste Quantity	0	1 2 3 4 5 6 7 8	1		8	
Total Waste Characteristics Score					20	
<input type="checkbox"/> 3 Targets						7.3
Distance to Nearest Population	0	1 2 3 4 5	1		5	
Distance to Nearest Building	0	1 2 3	1		3	
Distance to Sensitive Environment	0	1 2 3	1		3	
Land Use	0	1 2 3	1		3	
Population Within 2-Mile Radius	0	1 2 3 4 5	1		5	
Buildings Within 2-Mile Radius	0	1 2 3 4 5	1		5	
Total Targets Score					24	
<input type="checkbox"/> 4 Multiply <input type="checkbox"/> 1 x <input type="checkbox"/> 2 x <input type="checkbox"/> 3					1,440	
<input type="checkbox"/> 5 Divide line <input type="checkbox"/> 4 by 1,440 and multiply by 100				SFE =		

FIGURE 11
FIRE AND EXPLOSION WORK SHEET

Direct Contact Work Sheet						
Rating Factor	Assigned Value (Circle One)		Multi- plier	Score	Max. Score	Ref. (Section)
<input type="checkbox"/> 1 Observed Incident	0	45	1	0	45	8.1
If line <input type="checkbox"/> 1 is 45, proceed to line <input type="checkbox"/> 4 If line <input type="checkbox"/> 1 is 0, proceed to line <input type="checkbox"/> 2						
<input type="checkbox"/> 2 Accessibility	0	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3	1	2	3	8.2
<input type="checkbox"/> 3 Containment <i>Acid</i>	0	<input type="checkbox"/> 15	1	15	15	8.3
<input type="checkbox"/> 4 Waste Characteristics Toxicity	0	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3	5	15	15	8.4
<input type="checkbox"/> 5 Targets						8.5
Population Within a 1-Mile Radius	0	1 2 3 4 <input type="checkbox"/> 5	4	20	20	
Distance to a Critical Habitat	<input type="checkbox"/> 0	1 2 3	4	0	12	
Total Targets Score				20	32	
<input type="checkbox"/> 6 If line <input type="checkbox"/> 1 is 45, multiply <input type="checkbox"/> 1 x <input type="checkbox"/> 4 x <input type="checkbox"/> 5 If line <input type="checkbox"/> 1 is 0, multiply <input type="checkbox"/> 2 x <input type="checkbox"/> 3 x <input type="checkbox"/> 4 x <input type="checkbox"/> 5				9000	21,600	
<input type="checkbox"/> 7 Divide line <input type="checkbox"/> 6 by 21,600 and multiply by 100				SDC = 41.67		

FIGURE 12
DIRECT CONTACT WORK SHEET